



- 1 -

SEQUENCE LISTING

<110> Huang, Lan-Qing
Van Pel, Aline
Brasseur, Francis
De Plaen, Etienne
Boon, Thierry

<120> Tumour Rejection Antigens

<130> L0461.70115US00

<140> US 09/856,812

<141> 2001-05-25

<150> GB 9826143.1

<151> 1998-11-27

<160> 57

<170> PatentIn Ver. 3.2

<210> 1

<211> 369

<212> PRT

<213> Homo sapiens

<400> 1

Met Pro Arg Ala Pro Lys Arg Gln Arg Cys Met Pro Glu Glu Asp Leu
1 5 10 15

Gln Ser Gln Ser Glu Thr Gln Gly Leu Glu Gly Ala Gln Ala Pro Leu
20 25 30

Ala Val Glu Glu Asp Ala Ser Ser Ser Thr Ser Thr Ser Ser Ser Phe
35 40 45

Pro Ser Ser Phe Pro Ser Ser Ser Ser Ser Ser Ser Ser Cys Tyr
50 55 60

Pro Leu Ile Pro Ser Thr Pro Glu Glu Val Ser Ala Asp Asp Glu Thr
65 70 75 80

Pro Asn Pro Pro Gln Ser Ala Gln Ile Ala Cys Ser Ser Pro Ser Val
85 90 95

Val Ala Ser Leu Pro Leu Asp Gln Ser Asp Glu Gly Ser Ser Ser Gln
100 105 110

Lys Glu Glu Ser Pro Ser Thr Leu Gln Val Leu Pro Asp Ser Glu Ser
115 120 125

Leu Pro Arg Ser Glu Ile Asp Glu Lys Val Thr Asp Leu Val Gln Phe
130 135 140

Leu	Leu	Phe	Lys	Tyr	Gln	Met	Lys	Glu	Pro	Ile	Thr	Lys	Ala	Glu	Ile
145					150					155					160
Leu	Glu	Ser	Val	Ile	Lys	Asn	Tyr	Glu	Asp	His	Phe	Pro	Leu	Leu	Phe
				165					170						175
Ser	Glu	Ala	Ser	Glu	Cys	Met	Leu	Leu	Val	Phe	Gly	Ile	Asp	Val	Lys
			180						185				190		
Glu	Val	Asp	Pro	Thr	Gly	His	Ser	Phe	Val	Leu	Val	Thr	Ser	Leu	Gly
		195					200					205			
Leu	Thr	Tyr	Asp	Gly	Met	Leu	Ser	Asp	Val	Gln	Ser	Met	Pro	Lys	Thr
	210					215						220			
Gly	Ile	Leu	Ile	Leu	Ile	Leu	Ser	Ile	Ile	Phe	Ile	Glu	Gly	Tyr	Cys
225					230					235					240
Thr	Pro	Glu	Glu	Val	Ile	Trp	Glu	Ala	Leu	Asn	Met	Met	Gly	Leu	Tyr
				245						250					255
Asp	Gly	Met	Glu	His	Leu	Ile	Tyr	Gly	Glu	Pro	Arg	Lys	Leu	Leu	Thr
			260					265					270		
Gln	Asp	Trp	Val	Gln	Glu	Asn	Tyr	Leu	Glu	Tyr	Arg	Gln	Val	Pro	Gly
		275					280					285			
Ser	Asp	Pro	Ala	Arg	Tyr	Glu	Phe	Leu	Trp	Gly	Pro	Arg	Ala	His	Ala
		290				295					300				
Glu	Ile	Arg	Lys	Met	Ser	Leu	Leu	Lys	Phe	Leu	Ala	Lys	Val	Asn	Gly
305					310					315					320
Ser	Asp	Pro	Arg	Ser	Phe	Pro	Leu	Trp	Tyr	Glu	Glu	Ala	Leu	Lys	Asp
				325					330					335	
Glu	Glu	Glu	Arg	Ala	Gln	Asp	Arg	Ile	Ala	Thr	Thr	Asp	Asp	Thr	Thr
			340					345					350		
Ala	Met	Ala	Ser	Ala	Ser	Ser	Ser	Ala	Thr	Gly	Ser	Phe	Ser	Tyr	Pro
		355					360					365			

Glu

<210> 2
 <211> 234
 <212> PRT
 <213> Homo sapiens

<400> 2
 Met Leu Leu Gly Gln Lys Ser Gln Arg Tyr Lys Ala Glu Glu Gly Leu
 1 5 10 15

Gln Ala Gln Gly Glu Ala Pro Gly Leu Met Asp Val Gln Ile Pro Thr
20 25 30

Ala Glu Glu Gln Lys Ala Ala Ser Ser Ser Ser Thr Leu Ile Met Gly
35 40 45

Thr Leu Glu Glu Val Thr Asp Ser Gly Ser Pro Ser Pro Pro Gln Ser
50 55 60

Pro Glu Gly Ala Ser Ser Ser Leu Thr Val Thr Asp Ser Thr Leu Trp
65 70 75 80

Ser Gln Ser Asp Glu Gly Ser Ser Ser Asn Glu Glu Glu Gly Pro Ser
85 90 95

Thr Ser Pro Asp Pro Ala His Leu Glu Ser Leu Phe Arg Glu Ala Leu
100 105 110

Asp Glu Lys Val Ala Glu Leu Val Arg Phe Leu Leu Arg Lys Tyr Gln
115 120 125

Ile Lys Glu Pro Val Thr Lys Ala Glu Met Leu Glu Ser Val Ile Lys
130 135 140

Asn Tyr Lys Asn His Phe Pro Asp Ile Phe Ser Lys Ala Ser Glu Cys
145 150 155 160

Met Gln Val Ile Phe Gly Ile Asp Val Lys Glu Val Asp Pro Ala Gly
165 170 175

His Ser Tyr Ile Leu Val Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu
180 185 190

Leu Gly Asp Asp Gln Ser Thr Pro Lys Thr Gly Leu Leu Ile Ile Val
195 200 205

Leu Gly Met Ile Leu Met Glu Gly Ser Arg Ala Pro Glu Glu Ala Ile
210 215 220

Trp Glu Ala Leu Ser Val Met Gly Ala Val
225 230

<210> 3

<211> 3510

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1955)..(3064)

<400> 3

cagggagatg gtggcttttg cgtgcaagac ccatacacga ttcagcagga gggaaaggct 60
gggctgtcgg gagtaaactt gaatacctgg aggacaccca aataaaggaa gtccccgtct 120

```

tgtccccctc ccctgcccac cccccccccc ccccccgcca aatgtctgct ccttctgtca 180
gcttttgggaa tcccatgcag gtgtgatcgt gtggtgcccc tccccacttc tgcctgccgg 240
gtctcaggga ggtgaggacc ttggtctgag ggttgctaag aagttattac agggttccac 300
acttgggtcaa cagagggagg agtcccagaa tctgcaggac ccaaggggtg cccccttagt 360
gaggactgga ggtacctgca gccagaaaag aagggatgtc acagagtctg gctgtcccct 420
gttcttagct ctgaggggac ctgatcagga ttggcactaa gtggcaagct caattttacc 480
acaggcagga agatgaggaa ccctcaggga aatggagttt tgggtgtaaag gggagataatc 540
agccctggac accccacagg gatgacagga tgtggctcct tcttactttt gttttggaat 600
ctcaggggagg tgagaacctt gctctcagag ggtgactcaa gtcaacacag ggaacccctc 660
ttttctacag acacagtggg tcgcaggatc tgacaagagt ccaggtaagg aacctgaggg 720
aaatctgagg gtacccccag ccataaacac agatgggggtc cccacagaaa tctgccatga 780
ccctactgtc actctggaga acccagtcag ggctgtccgc tgagtctccc tgtcttatac 840
aaggatcact ggtctctggg agggagaggt gttgggtctaa gggagctgca ctcggtcag 900
cagagggagg gtcccagacc ctgccaggag tcaagggtgag gactgagggg acaccattct 960
ccaaacgcac aggactcagc cccaccctac cccttctgtc agccacggga attcatgggg 1020
aactgggggt agatggactc ccctcacttc ctctttccat gtctcctgga ggtaggacct 1080
tggtttaagg aagtggcctc agatcaacaa agggaggggtc ccaggtcgta tcaggcatca 1140
agaagaggac caagcaggct cctcacccca gtacacatgg acccagctga atatggccac 1200
ctcttgctgt cttttctggg aggacctctg cagttgtggc cagatgtggg tcccctcatg 1260
tcttctattt cgtatcaggg atgtaagctt ttgatctgag agtttcttag accagcaaag 1320
gagcaggggtc taggcttttc caggagaaaag gtgagagccc cacgtgagca cagaggctcc 1380
ccaccccagg gtagtgggga actcacagag tccagcccac cctcctgaca aactggggag 1440
gctgggggctg tgcttgcagc ctgaaccctg agggccctc aattcctctt tcaggagctc 1500
cagggactgt gaggtgaggc cttggtctaa ggcagtgtt tcaggtcaca gagcagaaaag 1560
ggcccagaca gtgccaggag tcaagggtgag gtgcatgccc tgaatgtgta ccaagggccc 1620
cacctgctcc aggacaaagt ggaccccact gcatcagctc cacctaccct actgtcagtc 1680
ctggagcctt ggctctgcc ggctgcatcc tgaggagcca tctctcactt ccttcttcag 1740
gttctcaggg gacagggaga gcaagagggtc aagagctgtg ggacaccaca gagcagcact 1800
gaaggagaag acctgtaagt tggcctttgt tagaacctcc aggggtgtgt tctcagctgt 1860
ggccacttac accctccctc tctcccaggg cctgtgggtc cccatcgccc aagtcctgcc 1920

```

```

cacactccca cctgctaccc tgatcagagt catc atg cct cga gct cca aag cgt 1975
                        Met Pro Arg Ala Pro Lys Arg
                        1                        5

```

```

cag cgc tgc atg cct gaa gaa gat ctt caa tcc caa agt gag aca cag 2023
Gln Arg Cys Met Pro Glu Glu Asp Leu Gln Ser Gln Ser Glu Thr Gln
                        10                        15                        20

```

```

ggc ctc gag ggt gca cag gct ccc ctg gct gtg gag gag gat gct tca 2071
Gly Leu Glu Gly Ala Gln Ala Pro Leu Ala Val Glu Glu Asp Ala Ser
                        25                        30                        35

```

```

tca tcc act tcc acc agc tcc tct ttt cca tcc tct ttt ccc tcc tcc 2119
Ser Ser Thr Ser Thr Ser Ser Ser Phe Pro Ser Ser Phe Pro Ser Ser
                        40                        45                        50                        55

```

```

tcc tct tcc tcc tcc tcc tcc tgc tat cct cta ata cca agc acc cca 2167
Ser Ser Ser Ser Ser Ser Ser Cys Tyr Pro Leu Ile Pro Ser Thr Pro
                        60                        65                        70

```

```

gag gag gtt tct gct gat gat gag aca cca aat cct ccc cag agt gct 2215
Glu Glu Val Ser Ala Asp Asp Glu Thr Pro Asn Pro Pro Gln Ser Ala
                        75                        80                        85

```

cag ata gcc tgc tcc tcc ccc tcg gtc gtt gct tcc ctt cca tta gat	2263
Gln Ile Ala Cys Ser Ser Pro Ser Val Val Ala Ser Leu Pro Leu Asp	
90 95 100	
caa tct gat gag ggc tcc agc agc caa aag gag gag agt cca agc acc	2311
Gln Ser Asp Glu Gly Ser Ser Ser Gln Lys Glu Glu Ser Pro Ser Thr	
105 110 115	
cta cag gtc ctg cca gac agt gag tct tta ccc aga agt gag ata gat	2359
Leu Gln Val Leu Pro Asp Ser Glu Ser Leu Pro Arg Ser Glu Ile Asp	
120 125 130 135	
gaa aag gtg act gat ttg gtg cag ttt ctg ctc ttc aag tat caa atg	2407
Glu Lys Val Thr Asp Leu Val Gln Phe Leu Leu Phe Lys Tyr Gln Met	
140 145 150	
aag gag ccg atc aca aag gca gaa ata ctg gag agt gtc ata aaa aat	2455
Lys Glu Pro Ile Thr Lys Ala Glu Ile Leu Glu Ser Val Ile Lys Asn	
155 160 165	
tat gaa gac cac ttc cct ttg ttg ttt agt gaa gcc tcc gag tgc atg	2503
Tyr Glu Asp His Phe Pro Leu Leu Phe Ser Glu Ala Ser Glu Cys Met	
170 175 180	
ctg ctg gtc ttt ggc att gat gta aag gaa gtg gat ccc act ggc cac	2551
Leu Leu Val Phe Gly Ile Asp Val Lys Glu Val Asp Pro Thr Gly His	
185 190 195	
tcc ttt gtc ctt gtc acc tcc ctg ggc ctc acc tat gat ggg atg ctg	2599
Ser Phe Val Leu Val Thr Ser Leu Gly Leu Thr Tyr Asp Gly Met Leu	
200 205 210 215	
agt gat gtc cag agc atg ccc aag act ggc att ctc ata ctt atc cta	2647
Ser Asp Val Gln Ser Met Pro Lys Thr Gly Ile Leu Ile Leu Ile Leu	
220 225 230	
agc ata atc ttc ata gag ggc tac tgc acc cct gag gag gtc atc tgg	2695
Ser Ile Ile Phe Ile Glu Gly Tyr Cys Thr Pro Glu Glu Val Ile Trp	
235 240 245	
gaa gca ctg aat atg atg ggg ctg tat gat ggg atg gag cac ctc att	2743
Glu Ala Leu Asn Met Met Gly Leu Tyr Asp Gly Met Glu His Leu Ile	
250 255 260	
tat ggg gag ccc agg aag ctg ctc acc caa gat tgg gtg cag gaa aac	2791
Tyr Gly Glu Pro Arg Lys Leu Leu Thr Gln Asp Trp Val Gln Glu Asn	
265 270 275	
tac ctg gag tac cgg cag gtg cct ggc agt gat cct gca cgg tat gag	2839
Tyr Leu Glu Tyr Arg Gln Val Pro Gly Ser Asp Pro Ala Arg Tyr Glu	
280 285 290 295	
ttt ctg tgg ggt cca agg gct cat gct gaa att agg aag atg agt ctc	2887
Phe Leu Trp Gly Pro Arg Ala His Ala Glu Ile Arg Lys Met Ser Leu	
300 305 310	

ctg aaa ttt ttg gcc aag gta aat ggg agt gat cca aga tcc ttc cca 2935
Leu Lys Phe Leu Ala Lys Val Asn Gly Ser Asp Pro Arg Ser Phe Pro
315 320 325

ctg tgg tat gag gag gct ttg aaa gat gag gaa gag aga gcc cag gac 2983
Leu Trp Tyr Glu Glu Ala Leu Lys Asp Glu Glu Glu Arg Ala Gln Asp
330 335 340

aga att gcc acc aca gat gat act act gcc atg gcc agt gca agt tct 3031
Arg Ile Ala Thr Thr Asp Asp Thr Thr Ala Met Ala Ser Ala Ser Ser
345 350 355

agc gct aca ggt agc ttc tcc tac cct gaa taa agtaagacag attcttcact 3084
Ser Ala Thr Gly Ser Phe Ser Tyr Pro Glu
360 365 370

gtgtttttaa aggcaagtca aataccacat gattttactc atatgtggaa tctaaaaaaaa 3144
aaaaaaaaaa agtttggtat catggaagta gagagtagag cagtagttac attacaatta 3204
aataggagga ataagttcta gtgttctatt gcacagtagg atgactatag ttaacattaa 3264
gatattgtat attacaaaac agctagaagg aaggcttttc aatattgtca ccaaaaagaa 3324
atgataaatg catgaggtga tggatacact acctgatttg atcattatac tacatatata 3384
tgaatcagaa catcaaattg tacctcataa atatctacaa ttacatgtca gtttttgttt 3444
atgtttttgt ttttttttaa tttatgaaaa caaatgagaa tggaaatcaa tgatgtatgt 3504
ggtgga 3510

<210> 4
<211> 2559
<212> DNA
<213> Homo sapiens

<400> 4
tccggggctcg ctcgagccgg ccgggactcg gggatcasaa gtaacggcgg yymkygtkct 60
gagggacagg cttgagatcg gctgaagaga gcgggcccag gctctgtgag gaggcaaggg 120
aggtgagaac cttgctctca gagggtgact caagtcaaca cagggaaccc ctcttttcta 180
cagacacagt gggtcgcagg atctgacaag agtccagggt ctacggggac agggagagca 240
agaggtcaag agctgtggga caccacagag cagcactgaa ggagaagacc tgcctgtggg 300
tccccatcgc ccaagtcctg cccacactcc cacctgctac cctgatcaga gtcacatcgc 360
ctcgagctcc aaagcgtcag cgctgcatgc ctgaagaaga tcttcaatcc caaagtgaga 420
cacagggcct cgaggggtgca caggctcccc tggctgtgga ggaggatgct tcatcatcca 480
cttccaccag ctccctcttt ccacctctt tccctcctc ctccctctcc tccctcctcc 540
cctgctatcc tctaatacca agcaccccag aggagggtttc tgctgatgat gagacaccaa 600
atcctcccca gagtgtctcag atagcctgct cctccccctc ggctcgttgct tcccttccat 660
tagatcaatc tgatgagggc tccagcagcc aaaaggagga gagtccaagc accctacagg 720
tctgccaga cagtgagtc ttaaccagaa gtgagataga tgaaaagggtg actgatttgg 780
tgcagtttct gctcttcaag tatcaaatga aggagccgat caciaaggca gaaatactgg 840
agagtgtcat aaaaaattat gaagaccact tccctttgtt gtttagtgaa gcctccgagt 900
gcatgctgct ggtctttggc attgatgtaa aggaagtgga tccactggc cactcctttg 960
tccttgctcac ctccctgggc ctacacatg atgggatgct gagtgatgtc cagagcatgc 1020
ccaagactgg cattctcata cttatcctaa gcataatctt catagagggc tactgcaccc 1080
ctgaggagggt catctgggaa gcaactgaata tgatggggct gtatgatggg atggagcacc 1140
tcatttatgg ggagcccagg aagctgctca cccaagattg ggtgcaggaa aactacctgg 1200
agtaccggca ggtgcctggc agtgatcctg cacggatga gtttctgtgg ggtccaaggg 1260
ctcatgctga aattaggaag atgagtcctc tgaaattttt ggccaaggta aatgggagtg 1320

```
atccaagatc cttcccactg tggatatgagg aggcctttgaa agatgaggaa gagagagccc 1380
aggacagaat tgccaccaca gatgatacta ctgccatggc cagtgcgaagt tctagcgcta 1440
caggtagctt ctcctaccct gaataaaagta agacagattc ttactgtgt tttaaaaggc 1500
aagtcaaata ccacatgatt ttactcatat gtggaatcta aaaaaaaaaa aaaaaaaagt 1560
tggatatcatg gaagtagaga gtagagcagt agttacatta caattaaata ggaggaataa 1620
gttctagtgt tctattgcac agtaggatga ctatagttaa cattaagata ttgtatatta 1680
caaaacagct agaaggaagg cttttcaata ttgtcaccaa aaagaaatga taaatgcatg 1740
aggtgatgga tacactacct gatgtgatca ttatactaca tatacatgaa tcagaacatc 1800
aaattgtacc tcataaatat ctacaattac atgtcagttt ttgtttatgt ttttgttttt 1860
ttttaattta tgaaaacaaa tgagaatgga aatcaatgat gtatgtggtg gagggccagg 1920
ctgaggctga ggaaaataca gtgcataaca tctttgtctt actgttttct ttggataacc 1980
tggggacttc ttttcttttc ttcttggtat tttattttct ttttcttctt cttctttttt 2040
ttttttaaca aagtctcact ctattgctct ggcaggagtg cagtggtgca gtctcggtc 2100
actgcaactt ccgcctcctg gggtcaagcg attctcctgc ctcagtctcc tgagtactg 2160
ggattacaag tgtgcaccac catacccggc taattttgta ttttttagta gagatggggt 2220
ttcaccatgt tggccaggct ggtctcaaac tcctgacctc aggtaatctg cccgcctcag 2280
cctcccaaag tgctgggata acaggtgtga gccactgca cccagcctc ttcttggtat 2340
tttaaaatgt tgttactttt actagaatgt ttatgagctt cagaatctaa ggtcacacgt 2400
tcgtttctgt ttatccagtt taagaaacag ttttgctatt ttgtaaaaca aattgggaac 2460
ccttccatca tatttgtaat ctttaataaa ataacatgga attggaatag taattttctt 2520
ggaaatatga aaaaatagta aaatagagaa aataatttt 2559
```

<210> 5

<211> 3839

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2196)..(2900)

<400> 5

```
agtctcagat cactggagag aggtgcccc aagcccttaa ggaggactca gcagacctcc 60
catcatggcc taggaaacct gctcccactc tcagggtctgg gcaccaagg caggacagtg 120
gggaagggat gtggcccccc cactttctgg tagggggggc tcaaggagat ggtggccttg 180
gcatgcaaga cacatccacg gttcagcagg aaggaaaggg ccatgccttg tcgtggagta 240
aatatgaata cctggatgac acccagacag agaaagacct catgaaacct actacttctg 300
tcagccgtgg gaatcccatg cagggttgct catgtagtgc ctcttactt ctgcctcctg 360
ggtctcaggg aggtagcaac ctgggtctga agggcgctct cagctcagca gagggagcca 420
cacctgttca acagagggac ggggtcacag gatctgcagg acccaagatg tgctcacttt 480
tggttattat ctctggggga acccgatcaa ggggtggcct aagtggagat ctcatctgta 540
ctgtgggcag gaagttgggg aaacgcagga agataagggtc ttggtggtaa ggggagatgt 660
ctgctcatat cagggtgttg tgggttgagg aagggcgggc tccatcaggg gaaagatgaa 720
taacccccctg aagaccttag aaccaccac tcaagaaca gtagggacag atcctagtgt 780
caccctgga caccacacc agtggtcac agatgtggtg gtcctcatt tctctcttga 840
gtctcaggga agtgaggacc ttgttctcag agggcaactc aggacaaac agggaccccc 900
atgtgggcaa cagactcagt ggtccaagaa tctaccaaga gtctaggtga caacactgag 960
ggaagattga gggtagcctc gatggttctc ctacagaggc aaaaacagat gggggcccaa 1020
cagaaatctg cccggcctct tttgtcacc ctgagagcat gagcaggact atcagctgag 1080
gccctgtgt tataccagac tcattggtct cagggagaag aaggccttg tctgagggca 1140
ctgcattcag gtcagcagag cgggggtcca aggcctgcc aggagtcagg gactcagagg 1200
acaccactca ccaaacacac aggaccgaac cccaccctgc accttctgtc agccatggga 1260
agtgcaggga aaggtaggtg gatggaatcc cctcatttgc tcttccagt tctcctggag 1320
```

ataggtcctt	ggattaagga	agtggcctca	ggtcagccca	ggacacatgg	gccccaatgt	1380
atattgtgta	gctattgctt	ttttctcacc	ctaggacaga	cacgtgggcc	ccattgcat	1440
ttgtgtagct	attgcttttt	tcccaggagg	ccttgggcat	gtggggccag	atgtgggtcc	1500
cttcatatcc	ttgtcttcca	tatcagggat	ataaactctt	gatctgaaag	tttctcaggc	1560
cagcaaaagg	gccagatcca	ggccctgcca	ggagaaagat	gagggccctg	aatgagcaca	1620
gaaaggacca	tccacacaaa	atagtgggga	gctcacagag	tcaggctcac	cctcctgaca	1680
gcactggggt	gctggggctg	tgcttgaggt	ctgcagcctg	agttcccctc	gatttatctt	1740
ctaggagctc	caggaaccag	gctgtgaggt	cctgggtctga	ggcagtatct	tcaatcacag	1800
agcataagag	gcccaggcag	tagtagcagt	caagctgagg	tggtgtttcc	cctgtatgta	1860
taccagaggc	ccctctggca	tcagaacagc	aggaacccca	cagttccctg	ccctaccagc	1920
ccttttgtca	gtcctggagc	cttggccttt	gccaggaggc	tgcaccctga	gatgccctct	1980
caatttctcc	ttcaggttcg	cagagaacag	gccagccagg	aggtcaggag	gccccagaga	2040
agcactgaag	aagacctgta	agtagacctt	tgttagggca	tccagggtgt	agtaccacag	2100
tgaggcctct	cacacgcttc	ctctctcccc	aggcctgtgg	gtctcaattg	cccagctccg	2160
gcccacactc tccgtgtgcc ctgacctgag tcatc atg ctt ctt ggg cag aag						2213
						Met Leu Leu Gly Gln Lys
						1 5
agt cag cgc tac aag gct gag gaa ggc ctt cag gcc caa gga gag gca						2261
Ser Gln Arg Tyr Lys Ala Glu Glu Gly Leu Gln Ala Gln Gly Glu Ala						
						10 15 20
cca ggg ctt atg gat gtg cag att ccc aca gct gag gag cag aag gct						2309
Pro Gly Leu Met Asp Val Gln Ile Pro Thr Ala Glu Glu Gln Lys Ala						
						25 30 35
gca tcc tcc tcc tct act ctg atc atg gga acc ctt gag gag gtg act						2357
Ala Ser Ser Ser Ser Thr Leu Ile Met Gly Thr Leu Glu Glu Val Thr						
						40 45 50
gat tct ggg tca cca agt cct ccc cag agt cct gag ggt gcc tcc tct						2405
Asp Ser Gly Ser Pro Ser Pro Pro Gln Ser Pro Glu Gly Ala Ser Ser						
						55 60 65 70
tcc ctg act gtc acc gac agc act ctg tgg agc caa tcc gat gag ggt						2453
Ser Leu Thr Val Thr Asp Ser Thr Leu Trp Ser Gln Ser Asp Glu Gly						
						75 80 85
tcc agc agc aat gaa gag gag ggg cca agc acc tcc ccg gac cca gct						2501
Ser Ser Ser Asn Glu Glu Glu Gly Pro Ser Thr Ser Pro Asp Pro Ala						
						90 95 100
cac ctg gag tcc ctg ttc cgg gaa gca ctt gat gag aaa gtg gct gag						2549
His Leu Glu Ser Leu Phe Arg Glu Ala Leu Asp Glu Lys Val Ala Glu						
						105 110 115
tta gtt cgt ttc ctg ctc cgc aaa tat caa att aag gag ccg gtc aca						2597
Leu Val Arg Phe Leu Leu Arg Lys Tyr Gln Ile Lys Glu Pro Val Thr						
						120 125 130
aag gca gaa atg ctt gag agt gtc atc aaa aat tac aag aac cac ttt						2645
Lys Ala Glu Met Leu Glu Ser Val Ile Lys Asn Tyr Lys Asn His Phe						
						135 140 145 150

cct gat atc ttc agc aaa gcc tct gag tgc atg cag gtg atc ttt ggc 2693
Pro Asp Ile Phe Ser Lys Ala Ser Glu Cys Met Gln Val Ile Phe Gly
155 160 165

att gat gtg aag gaa gtg gac cct gcc ggc cac tcc tac atc ctt gtc 2741
Ile Asp Val Lys Glu Val Asp Pro Ala Gly His Ser Tyr Ile Leu Val
170 175 180

acc tgc ctg ggc ctc tcc tat gat ggc ctg ctg ggt gat gat cag agt 2789
Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly Asp Asp Gln Ser
185 190 195

acg ccc aag acc ggc ctc ctg ata atc gtc ctg ggc atg atc tta atg 2837
Thr Pro Lys Thr Gly Leu Ile Ile Val Leu Gly Met Ile Leu Met
200 205 210

gag ggc agc cgc gcc ccg gag gag gca atc tgg gaa gca ttg agt gtg 2885
Glu Gly Ser Arg Ala Pro Glu Glu Ala Ile Trp Glu Ala Leu Ser Val
215 220 225 230

atg ggg gct gta tga tgggagggag cacagtgtct attggaagct caggaagctg 2940
Met Gly Ala Val
235

ctcacccaag agtgggtgca ggagaactac ctggagtacc gccaggcgcc cggcagtgat 3000
cctgtgcgct acgagttcct gtgggggtcca agggcccttg ctgaaaccag ctatgtgaaa 3060
gtcctggagc atgtggtcag ggtcaatgca agagtgcgca tttcctaccc atccctgcat 3120
gaagaggctt tgggagagga gaaaggagtt tgagcaggag ttgcagctag ggccagtggg 3180
gcaggttgtg ggagggcctg ggccagtgca cgttccaggg ccacatccac cactttccct 3240
gctctgttac atgaggccca ttcttcactc tgtgtttgaa gagagcagtc acagttctca 3300
gtagtgggga gcatgttggg tgtgagggaa cacagtgtgg accatctctc agttcctgtt 3360
ctattgggag atttgagggt ttatctttgt ttctttttgg aattgttcca atgttccttc 3420
taatggatgg tgtaatgaac ttcaacattc attttatgta tgacagtaga cagacttact 3480
gctttttata tagtttagga gtaagagtct tgcttttcat ttatactggg aaacccatgt 3540
tatttcttga attcagacac tacaagagca gaggattaag gtttttttag aaatgtgaaa 3600
caacatagca gtaaaatata tgagataaag acataaagaa attaaacaat agttaattct 3660
tgccttacct gtacctctta gtgtacccta tgtacctgaa tttgcttggc ttctttgaga 3720
atgaaattga attaaatatg aataaataag tccccctgct cactggctca ttttttccca 3780
aaatattcat tgagcttccg ctatttgga ggccctgggt tagtattgga gatgtctaca 3839

<210> 6

<211> 1810

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (452)..(1153)

<400> 6

gagctccagg aaccaggctg tgagggtcttg gtctgaggca gtatcttcaa tcacagagca 60
taagaggccc aggcagtagt agcagtcaag ctgagggtgg gtttcccctg tatgtatacc 120
agaggcccct ctggcatcag aacagcagga accccacagt tccctggccct accagcccct 180
ttgtcagtcc tggagccttg gccttttgcca ggaggctgca ccctgagatg ccctctcaat 240

ttctccttca ggttcgcaga gaacaggcca gccaggaggt caggaggccc cagagaagca	300
ctgaagaaga cctgtaagta gacctttgtt agggcatcca ggggtgtagta cccagctgag	360
gcctctcaca cgcttcctct ctccccaggc ctgtgggtct caattgcccc gctccggccc	420
acactctcct gctgccctga cctgagtcac c atg ctt ctt ggg cag aag agt	472
Met Leu Leu Gly Gln Lys Ser	
1 5	
cag cgc tac aag gct gag gaa ggc ctt cag gcc caa gga gag gca cca	520
Gln Arg Tyr Lys Ala Glu Glu Gly Leu Gln Ala Gln Gly Glu Ala Pro	
10 15 20	
ggg ctt atg gat gtg cag att ccc aca gct gag gag cag aag gct gca	568
Gly Leu Met Asp Val Gln Ile Pro Thr Ala Glu Glu Gln Lys Ala Ala	
25 30 35	
tcc tcc tcc tct act ctg atc atg gga acc ctt gag gag gtg act gat	616
Ser Ser Ser Ser Thr Leu Ile Met Gly Thr Leu Glu Glu Val Thr Asp	
40 45 50 55	
tct ggg tca cca agt cct ccc cag agt cct gag ggt gcc tcc tct tcc	664
Ser Gly Ser Pro Ser Pro Pro Gln Ser Pro Glu Gly Ala Ser Ser Ser	
60 65 70	
ctg act gtc acc gac agc act ctg tgg agc caa tcc gat gag ggt tcc	712
Leu Thr Val Thr Asp Ser Thr Leu Trp Ser Gln Ser Asp Glu Gly Ser	
75 80 85	
agc agc aat gaa gag gag ggg cca agc acc tcc ccg gac cca gct cac	760
Ser Ser Asn Glu Glu Glu Gly Pro Ser Thr Ser Pro Asp Pro Ala His	
90 95 100	
ctg gag tcc ctg ttc cgg gaa gca ctt gat gag aaa gtg gct gag tta	808
Leu Glu Ser Leu Phe Arg Glu Ala Leu Asp Glu Lys Val Ala Glu Leu	
105 110 115	
gtt cgt ttc ctg ctc cgc aaa tat caa att aag gag ccg gtc aca aag	856
Val Arg Phe Leu Leu Arg Lys Tyr Gln Ile Lys Glu Pro Val Thr Lys	
120 125 130 135	
gca gaa atg ctt gag agt gtc atc aaa aat tac aag aac cac ttt cct	904
Ala Glu Met Leu Glu Ser Val Ile Lys Asn Tyr Lys Asn His Phe Pro	
140 145 150	
gat atc ttc agc aaa gcc tct gag tgc atg cag gtg atc ttt ggc att	952
Asp Ile Phe Ser Lys Ala Ser Glu Cys Met Gln Val Ile Phe Gly Ile	
155 160 165	
gat gtg aag gaa gtg gac cct gcc ggc cac tcc tac atc ctt gtc acc	1000
Asp Val Lys Glu Val Asp Pro Ala Gly His Ser Tyr Ile Leu Val Thr	
170 175 180	
tgc ctg ggc ctc tcc tat gat ggc ctg ctg ggt gat gat cag agt acg	1048
Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly Asp Asp Gln Ser Thr	
185 190 195	

ccc aag acc ggc ctc ctg ata atc gtc ctg ggc atg atc tta atg gag 1096
Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly Met Ile Leu Met Glu
200 205 210 215

ggc agc cgc gcc ccg gag gag gca atc tgg gaa gca ttg agt gtg atg 1144
Gly Ser Arg Ala Pro Glu Glu Ala Ile Trp Glu Ala Leu Ser Val Met
220 225 230

ggg gct gta tgatgggagg gagcacagtg tctattggaa gctcaggaag 1193
Gly Ala Val

ctgctcacc aagagtgggt gcaggagaac tacctggagt accgccaggc gcccggcagt 1253
gatcctgtgc gctacgagtt cctgtgggggt ccaagggccc ttgctgaaac cagctatgtg 1313
aaagtcctgg agcatgtggt caggggtcaat gcaagagttc gcatttccta cccatccctg 1373
catgaagagg ctttgggaga ggagaaaagga gtttgagcag gagttgcagc tagggccagt 1433
ggggcagggt gtgggagggc ctgggccagt gcacgttcca gggccacatc caccactttc 1493
cctgctctgt tacatgaggc ccatttctca ctctgtgttt gaagagagca gtcacagttc 1553
tcagtagtgg ggagcatgtt ggggtgtgagg gaacacagtg tggaccatct ctcagttcct 1613
gttctattgg gcgatttgga ggtttatctt tgtttccttt tggaattgtt ccaatgttcc 1673
ttctaataag tgggtgtaag aacttcaaca ttcattttat gtatgacagt agacagactt 1733
actgcttttt atatagttta ggagtaagag tcttgctttt catttatact gggaaaccca 1793
tgttatttct tgaattc 1810

<210> 7
<211> 920
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (334)..(918)

<400> 7
acctgctcca ggacaaagtg gacccactg catcagctcc acctacccta ctgtcagtcc 60
tgagagccttg gcctctgccc gctgcatcct gaggagccat ctctcacttc cttcttcagg 120
ttctcagggg acagggagag caagagggtca agagctgtgg gacaccacag agcagcactg 180
aaggagaaga cctgtaagtt ggcctttgtt agaacctcca ggggtgtgggt ctcagctgtg 240
gccacttaca cctccctct ctcccaggc ctgtgggtcc ccatcgccca agtcctgccc 300

acactcccac ctgctaccct gatcagagtc atc atg cct cga gct cca aag cgt 354
Met Pro Arg Ala Pro Lys Arg
1 5

cag cgc tgc atg cct gaa gaa gat ctt caa tcc caa agt gag aca cag 402
Gln Arg Cys Met Pro Glu Glu Asp Leu Gln Ser Gln Ser Glu Thr Gln
10 15 20

ggc ctc gag ggt gca cag gct ccc ctg gct gtg gag gag gat gct tca 450
Gly Leu Glu Gly Ala Gln Ala Pro Leu Ala Val Glu Glu Asp Ala Ser
25 30 35

tca tcc act tcc acc agc tcc tct ttt cca tcc tct ttt ccc tcc tcc 498

Ser	Ser	Thr	Ser	Thr	Ser	Ser	Ser	Phe	Pro	Ser	Ser	Phe	Pro	Ser	Ser		
40					45					50					55		
tcc	tct	tcc	tcc	tcc	tcc	tcc	tgc	tat	cct	cta	ata	cca	agc	acc	cca	546	
Ser	Ser	Ser	Ser	Ser	Ser	Ser	Cys	Tyr	Pro	Leu	Ile	Pro	Ser	Thr	Pro		
				60					65					70			
gag	gag	gtt	tct	gct	gat	gat	gag	aca	cca	aat	cct	ccc	cag	agt	gct	594	
Glu	Glu	Val	Ser	Ala	Asp	Asp	Glu	Thr	Pro	Asn	Pro	Pro	Gln	Ser	Ala		
			75					80					85				
cag	ata	gcc	tgc	tcc	tcc	ccc	tcg	gtc	gtt	gct	tcc	ctt	cca	tta	gat	642	
Gln	Ile	Ala	Cys	Ser	Ser	Pro	Ser	Val	Val	Ala	Ser	Leu	Pro	Leu	Asp		
		90					95					100					
caa	tct	gat	gag	ggc	tcc	agc	agc	caa	aag	gag	gag	agt	cca	agc	acc	690	
Gln	Ser	Asp	Glu	Gly	Ser	Ser	Ser	Gln	Lys	Glu	Glu	Ser	Pro	Ser	Thr		
	105					110						115					
cta	cag	gtc	ctg	cca	gac	agt	gag	tct	tta	ccc	aga	agt	gag	ata	gat	738	
Leu	Gln	Val	Leu	Pro	Asp	Ser	Glu	Ser	Leu	Pro	Arg	Ser	Glu	Ile	Asp		
120					125					130					135		
gaa	aag	gtg	act	gat	ttg	gtg	cag	ttt	ctg	ctc	ttc	aag	tat	caa	atg	786	
Glu	Lys	Val	Thr	Asp	Leu	Val	Gln	Phe	Leu	Leu	Phe	Lys	Tyr	Gln	Met		
				140					145					150			
aag	gag	ccg	atc	aca	aag	gca	gaa	ata	ctg	gag	agt	gtc	ata	aaa	aat	834	
Lys	Glu	Pro	Ile	Thr	Lys	Ala	Glu	Ile	Leu	Glu	Ser	Val	Ile	Lys	Asn		
			155					160					165				
tat	gaa	gac	cac	ttc	cct	ttg	ttg	ttt	agt	gaa	gcc	tcc	gag	tgc	atg	882	
Tyr	Glu	Asp	His	Phe	Pro	Leu	Leu	Phe	Ser	Glu	Ala	Ser	Glu	Cys	Met		
		170					175					180					
ctg	ctg	gtc	ttt	ggc	att	gat	gta	aag	gaa	gtg	gat	cc				920	
Leu	Leu	Val	Phe	Gly	Ile	Asp	Val	Lys	Glu	Val	Asp						
	185					190					195						

<210> 8
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 8
 Glu Ala Asp Pro Thr Gly His Ser Tyr
 1 5

<210> 9
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 9
Ser Ala Tyr Gly Glu Pro Arg Lys Leu
1 5

<210> 10
<211> 9
<212> PRT
<213> Homo sapiens

<400> 10
Glu Val Asp Pro Ile Gly His Leu Tyr
1 5

<210> 11
<211> 9
<212> PRT
<213> Homo sapiens

<400> 11
Phe Leu Trp Gly Pro Arg Ala Leu Val
1 5

<210> 12
<211> 10
<212> PRT
<213> Homo sapiens

<400> 12
Met Glu Val Asp Pro Ile Gly His Leu Tyr
1 5 10

<210> 13
<211> 9
<212> PRT
<213> Homo sapiens

<400> 13
Ala Ala Arg Ala Val Phe Leu Ala Leu
1 5

<210> 14
<211> 8
<212> PRT
<213> Homo sapiens

<400> 14
Tyr Arg Pro Arg Pro Arg Arg Tyr
1 5

<210> 15
<211> 10
<212> PRT
<213> Homo sapiens

<400> 15
Ser Pro Ser Ser Asn Arg Ile Arg Asn Thr
1 5 10

<210> 16
<211> 9
<212> PRT
<213> Homo sapiens

<400> 16
Val Leu Pro Asp Val Phe Ile Arg Cys
1 5

<210> 17
<211> 10
<212> PRT
<213> Homo sapiens

<400> 17
Val Leu Pro Asp Val Phe Ile Arg Cys Val
1 5 10

<210> 18
<211> 9
<212> PRT
<213> Homo sapiens

<400> 18
Glu Glu Lys Leu Ile Val Val Leu Phe
1 5

<210> 19
<211> 9
<212> PRT
<213> Homo sapiens

<400> 19
Glu Glu Lys Leu Ser Val Val Leu Phe
1 5

<210> 20
<211> 10
<212> PRT
<213> Homo sapiens

<400> 20
Ala Cys Asp Pro His Ser Gly His Phe Val
1 5 10

<210> 21
<211> 10
<212> PRT
<213> Homo sapiens

<400> 21
Ala Arg Asp Pro His Ser Gly His Phe Val
1 5 10

<210> 22
<211> 9
<212> PRT
<213> Homo sapiens

<400> 22
Ser Tyr Leu Asp Ser Gly Ile His Phe
1 5

<210> 23
<211> 9
<212> PRT
<213> Homo sapiens

<400> 23
Ser Tyr Leu Asp Ser Gly Ile His Ser
1 5

<210> 24
<211> 9
<212> PRT
<213> Homo sapiens

<400> 24
Met Leu Leu Ala Val Leu Tyr Cys Leu
1 5

<210> 25
<211> 9
<212> PRT
<213> Homo sapiens

<400> 25
Tyr Met Asn Gly Thr Met Ser Gln Val
1 5

<210> 26
<211> 9
<212> PRT
<213> Homo sapiens

<400> 26
Ala Phe Leu Pro Trp His Arg Leu Phe
1 5

<210> 27
<211> 9
<212> PRT
<213> Homo sapiens

<400> 27
Ser Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 28
<211> 9
<212> PRT
<213> Homo sapiens

<400> 28
Tyr Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 29
<211> 15
<212> PRT
<213> Homo sapiens

<400> 29
Gln Asn Ile Leu Leu Ser Asn Ala Pro Leu Gly Pro Gln Phe Pro
1 5 10 15

<210> 30
<211> 15
<212> PRT
<213> Homo sapiens

<400> 30
Asp Tyr Ser Tyr Leu Gln Asp Ser Asp Pro Asp Ser Phe Gln Asp
1 5 10 15

<210> 31
<211> 9
<212> PRT
<213> Homo sapiens

<400> 31
Ala Ala Gly Ile Gly Ile Leu Thr Val
1 5

<210> 32
<211> 10
<212> PRT
<213> Homo sapiens

<400> 32
Glu Ala Ala Gly Ile Gly Ile Leu Thr Val
1 5 10

<210> 33
<211> 9
<212> PRT
<213> Homo sapiens

<400> 33
Ile Leu Thr Val Ile Leu Gly Val Leu
1 5

<210> 34
<211> 9
<212> PRT
<213> Homo sapiens

<400> 34
Lys Thr Trp Gly Gln Tyr Trp Gln Val
1 5

<210> 35
<211> 9
<212> PRT
<213> Homo sapiens

<400> 35
Ile Thr Asp Gln Val Pro Phe Ser Val
1 5

<210> 36
<211> 9
<212> PRT
<213> Homo sapiens

<400> 36
Tyr Leu Glu Pro Gly Pro Val Thr Ala
1 5

<210> 37
<211> 10
<212> PRT
<213> Homo sapiens

<400> 37
Leu Leu Asp Gly Thr Ala Thr Leu Arg Leu
1 5 10

<210> 38
<211> 10
<212> PRT
<213> Homo sapiens

<400> 38
Val Leu Tyr Arg Tyr Gly Ser Phe Ser Val
1 5 10

<210> 39
<211> 9
<212> PRT
<213> Homo sapiens

<400> 39
Leu Tyr Val Asp Ser Leu Phe Phe Leu
1 5

<210> 40
<211> 12
<212> PRT
<213> Homo sapiens

<400> 40
Lys Ile Ser Gly Gly Pro Arg Ile Ser Tyr Pro Leu
1 5 10

<210> 41
<211> 9
<212> PRT
<213> Homo sapiens

<400> 41
Tyr Met Asp Gly Thr Met Ser Gln Val
1 5

<210> 42
<211> 9
<212> PRT

<213> Homo sapiens

<400> 42

Gly Leu Tyr Asp Gly Met Glu His Leu
1 5

<210> 43

<211> 9

<212> PRT

<213> Homo sapiens

<400> 43

Gly Leu Tyr Asp Gly Arg Glu His Ser
1 5

<210> 44

<211> 10

<212> PRT

<213> Homo sapiens

<400> 44

Gly Leu Tyr Asp Gly Met Glu His Leu Ile
1 5 10

<210> 45

<211> 10

<212> PRT

<213> Homo sapiens

<400> 45

Gly Leu Tyr Asp Gly Arg Glu His Ser Val
1 5 10

<210> 46

<211> 9

<212> PRT

<213> Homo sapiens

<400> 46

Met Leu Leu Val Phe Gly Ile Asp Val
1 5

<210> 47

<211> 10

<212> PRT

<213> Homo sapiens

<400> 47

Cys Met Leu Leu Val Phe Gly Ile Asp Val

1 5 10

<210> 48
<211> 9
<212> PRT
<213> Homo sapiens

<400> 48
Phe Leu Leu Phe Lys Tyr Gln Met Lys
1 5

<210> 49
<211> 9
<212> PRT
<213> Homo sapiens

<400> 49
Phe Ile Glu Gly Tyr Cys Thr Pro Glu
1 5

<210> 50
<211> 9
<212> PRT
<213> Homo sapiens

<400> 50
Gly Leu Glu Leu Ala Gln Ala Pro Leu
1 5

<210> 51
<211> 29
<212> DNA
<213> Homo sapiens

<400> 51
ggaattcatc atgcctcgag ctccaaagc 29

<210> 52
<211> 31
<212> DNA
<213> Homo sapiens

<400> 52
gctctagagc ttaggctatc tgagcactct g 31

<210> 53
<211> 31
<212> DNA
<213> Homo sapiens

<400> 53
gctctagagc ttagcactcg gaggcttcac t 31

<210> 54
<211> 31
<212> DNA
<213> Homo sapiens

<400> 54
gctctagagc ttaccaatct tgggtgagca g 31

<210> 55
<211> 21
<212> DNA
<213> Homo sapiens

<400> 55
cacagagcag cactgaagga g 21

<210> 56
<211> 23
<212> DNA
<213> Homo sapiens

<400> 56
ctgggtaaag actcactgtc tgg 23

<210> 57
<211> 9
<212> PRT
<213> Homo sapiens

<400> 57

Cys Leu Gly Leu Ser Tyr Asp Gly Leu
1 5